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*In the Supreme Court of the United States.*

OCTOBER TERM, 1922.

OLGA GATHMANN FOLEY, ADMINISTRATRIX of the estate of Louis Gathmann, de- ceased, appellant,	} No. 203.
<i>v.</i> THE UNITED STATES.	

*APPEAL FROM THE COURT OF CLAIMS.*

**BRIEF FOR THE UNITED STATES.**

**STATEMENT.**

This case is before this Court on appeal from the judgment of the Court of Claims dismissing appellant's claim for compensation asserted to be due under an alleged contract between appellant and the United States for use of a patented method of drying substances or materials. Two Patents, Nos. 763387 and 763388, are involved in this claim. (See petition, par. 4, Rec. p. 3.)

Appellant alleges that under an express contract between Louis Gathmann, appellant's decedent, and Admiral Charles F. O'Neil, the United States is obligated to pay one cent per pound for powder manufactured by the United States covered by Gathmann's process patents.

Defendant's position is that the agreement styled by appellant an express contract is but an option agreement which never crystallized into an express contract; that the Government has never used the method referred to in the option agreement; and that, furthermore, the patents are invalid for want of novelty.

**The Option Agreement.**

The contract referred to in the opening statement of this brief, and upon which appellant bases her claim, consists of an exchange of letters in 1903 between Louis Gathmann and Admiral Charles F. O'Neil, then Chief of the Navy Ordnance Bureau. Gathmann's letter was as follows:

1839 VERNON AVE. NW.,  
*Washington, D. C., March 24, 1903.*

SIR: The undersigned has made an invention, "Method of drying materials," for which patent has been filed February 9, 1903, series number 142653.

Now, in consideration of the Navy Department building an apparatus for testing this method, without expense to me, I hereby give the Navy Department the option of using my method of drying materials, if they find it to their advantage, by paying to me, my heirs, or my legal representatives, \$0.01 (one cent) for each pound of material dried by my method.

Very respectfully,

LOUIS GATHMANN.

Admiral O'NEIL,

*Chief of Bureau of Ordnance.*

To this Admiral O'Neil, under date of March 26, 1903, responded as follows:

NAVY DEPARTMENT,  
BUREAU OF ORDNANCE,  
*Washington, D. C., March 26, 1903.*

SIR: Referring to your communication of March 24, 1903, offering the Navy Department the option of using your method of drying materials on payment of 1 cent per pound on materials so dried:

1. The bureau has to inform you that it accepts your proposition and has ordered one experimental apparatus for drying smokeless powder, constructed in accordance with plans submitted by you. This apparatus will be tested without expense to you, and if it works satisfactorily to the bureau, the bureau agrees to pay you, your heirs, or legal representatives, 1 cent for each pound of smokeless powder dried by the method covered by your application or applications filed or to be filed with the U. S. Patent Office, provided a patent or patents is or are issued to you therefor.

Respectfully,

CHARLES O'NEIL,  
*Chief of Bureau of Ordnance.*

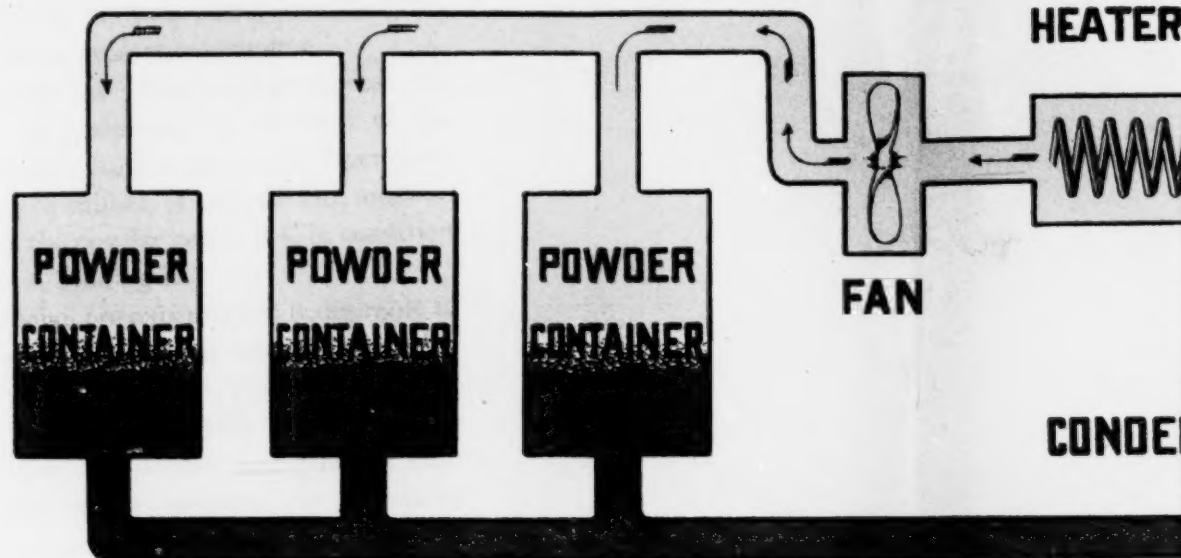
Thereafter Gathmann set up at Indian Head, Maryland, at Government expense, experimental apparatus and extensively tested the method set forth in Patents Nos. 763387 and 763388. These tests began in October, 1903, and continued until October, 1904. (Rec. p. 8.)

tion of fluids being familiarly referred to as the "solvent."

To shape this plastic powder mass into the final cylindrical grains, it is forced through a perforated die, being squeezed out through the perforations in long strings like macaroni. These strings or soft powder bars are then cut into the desired lengths, and the grain-forming process is complete.

Immediately after the grain-forming process the powder contains approximately 40 per cent of the ether-alcohol solvent. All but about 4 to 7 per cent, varying according to caliber, of this solvent, must be evaporated out of the powder before it is in condition for use. (Rec. p. 5, Finding II.)

As ether and alcohol are expensive, it is desirable to recover and save as much of this solvent as possible in the process of evaporation. The solvent, being highly volatile, begins evaporating as soon as the grains emerge from the presses and when a considerable part has been evaporated the remainder leaves the powder much more reluctantly. Thus it is found practicable to recover by condensation such solvent as comes off freely from the powder in its "green" state, the remainder being evaporated by a slow drying process. At this latter stage the powder is customarily set in bins in drying houses and permitted to complete its drying process in the warm air circulating within the houses, no further effort being made to condense and recover the relatively small amount of solvent given off by it.



**DIAGRAM OF DEFENDANT'S PROC**  
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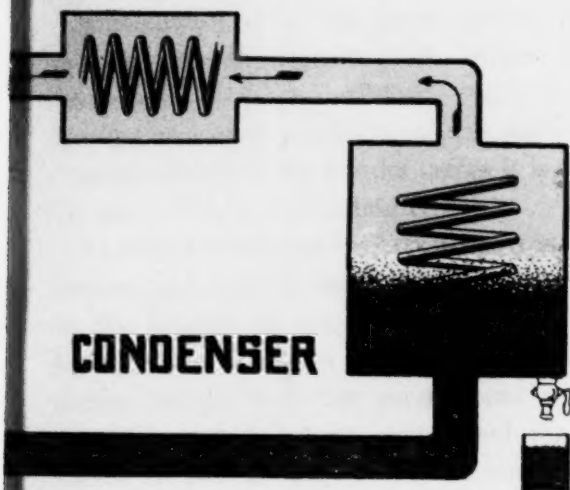
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**HEATER**



**CONDENSER**

**S PROCESS AS USED IN**

**Government Method of Recovering Solvent and Drying Prior to  
Advent of Gathman.**

For the Court to gain an accurate understanding of precisely what Gathman proposed to the Navy, through Admiral O'Neil in 1903, and to make clear exactly how Gathman's proposed powder treatment differed from the processes already in use, there is inserted at this point a brief description of the Government process as used in 1900, and for some time thereafter, long before Gathman suggested his improvement.

The apparatus used by the Government beginning in 1900 is shown in Exhibit I, a part of Finding III, Rec. p. 5. This Exhibit I is printed opposite this page, which illustrates the important features both of this apparatus and the process carried out in its use. Referring now to the diagram opposite, observe the three powder containers in which the fresh, or "green," powder is placed. From the bottom of these containers air conduits lead to the condenser, which is merely a chamber cooled by refrigerating coils. From the powder containers to the condenser the pipe and chamber space is filled in with blue, the color being used to indicate air highly charged with vaporous ether and alcohol (solvent). Arrows indicate the direction of flow of air within the apparatus.

In the condenser the cold coils lower the temperature of the solvent-laden air, resulting in the liquefaction of the solvent, which is recovered in fluid form in the receptacle beneath. At this juncture it



is important to note that the Government so operated its apparatus as to render condensation as complete as possible at all times, thereby recovering solvent rapidly and returning dry air through heater and fan to the powder chamber. To illustrate this point, the pipe and chamber space beyond the condenser is filled in with yellow, the yellow color being used in all diagrams to indicate air substantially free of solvent vapor.

The Court of Claims in Finding III (Rec. p. 5) states:

In this method there is, generally speaking, a closed circuit embracing a heating chamber, a powder chamber, and a condensing chamber, with the necessary connecting pipes or conduits and means for effecting circulation of the air in the circuit, as by fan or gravity. In operation the warm air from the heating chamber passes on to the powder chamber, when it absorbs solvent from the "green" powder, then passes on to the condensing chamber, where the solvent carried by it is condensed to liquid form, the air then passing on to the heating chamber again for reheating and repetition of the cycle.

This process just quoted from Finding III was technically known as a closed circuit, no outside air being admitted during the operation. Following this solvent-recovery treatment, the powder was placed in dry houses and dried to the proper condition merely by causing warm air to circulate through it, as already described. (Finding III, p. 6, Rec.)

**Gathmann's Proposed Method.**

The Gathmann Patents Nos. 763387 and 763388, introduced in evidence by appellant, afford a full, though not always clear, description of his powder-drying scheme. At the time Gathmann discussed his ideas with Admiral O'Neil there were no patents, merely an application for one. That application when finally it ripened into Patent No. 763387, and a later process patent, No. 763388, disclose substantially the same process and apparatus for working it that the Government constructed under Gathmann's direction at Indianhead, Maryland. (Finding VI, Rec. p. 7.)

It will be remembered that in the old Government 1900 process (see opposite page) dry air was forced down through the green powder, absorbing therefrom its load of volatilized solvent. The air, now heavily charged with the ether-alcohol vapor, passed into the condenser, where cold coils condensed all the solvent vapor as nearly as possible, thus drying out the air which, after being reheated, was returned to the powder chambers to repeat the process.

Now, Gathmann believed that the dry air blowing on the powder tended to harden and dry the grains on their surface, thus imprisoning much solvent within the grains behind a relatively impervious crust. (Lines 25-30, Pat. No. 763387 and 763388.)

The essence of his theory was to keep the air in the drying system or circuit continually charged with solvent vapor, condensing out of it *only a portion* of this vapor, thus returning to the powder chamber,

not dry air (as in the Government process) but air still charged with solvent vapor. In this manner he hoped to avoid the formation of dry surface crusts on the powder grains, keeping the grains pervious and so absorb their liquid "from the inside out."

Referring now to the diagram opposite this page this will be seen illustrated.

In the powder chamber Gathmann provided what he calls a "heater-condenser" coil; that is, a coil to be connected at will with a heating or with a cooling fluid. By manipulating the temperature of his coil, he proposed so to govern the condition of the powder mass within the chamber that the air within it should at all times be saturated with solvent, and never dry, as in the Government's method.

In Patents 763376 and 763388 (lines 8-15, p. 2) Gathmann provides for the actual introduction of extra fluid, such as steam, to attain this constant air saturation. As shown by the blue coloring, Gathmann proposed not only to keep the air within the powder chamber saturated with solvent so long as possible but also to regulate or temper the condenser so that only a portion of this vapor content would be liquefied out, thus returning the air through fan and heater, still damp with uncondensed solvent, to the powder chamber.

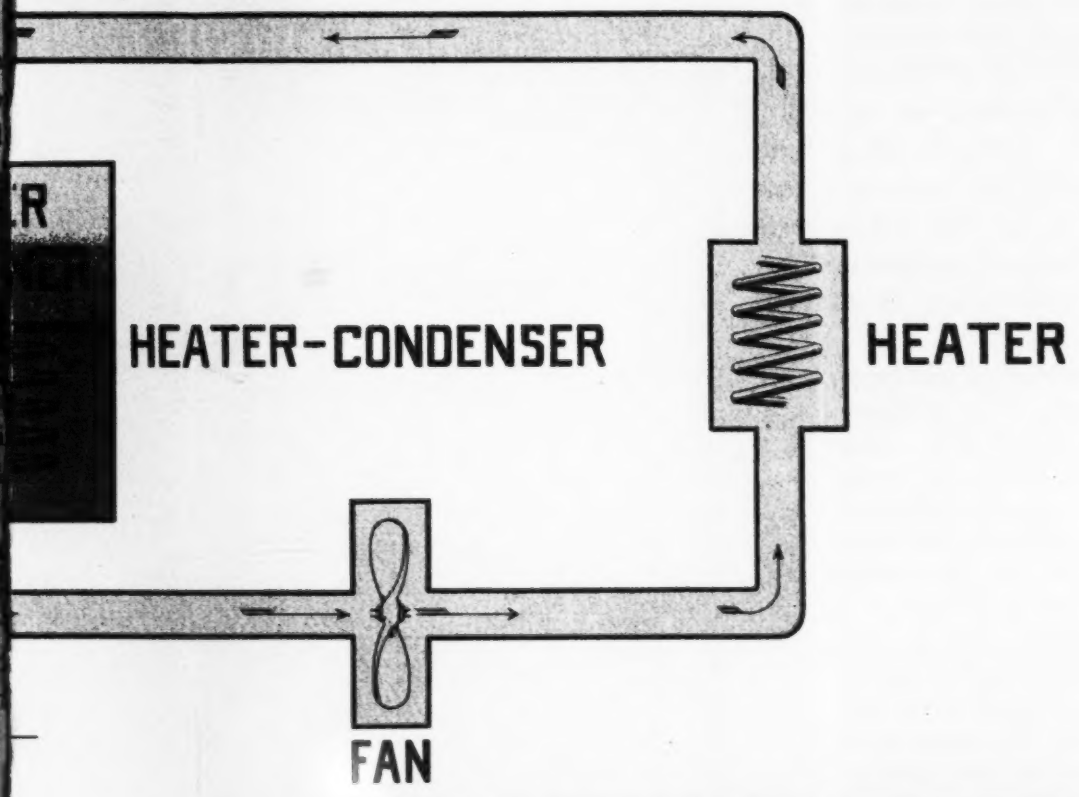
**The Gathmann Patents Nos. 763387 and 763388.**

In Gathmann's Patents Nos. 763387 and 763388, lines 12 to 48 (p. 1), he expressly disclaims that his process covers all closed circuit dryers, saying:

**POWDER**



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**DIAGRAM OF GATHMANN PROCESS**



ARSHAM IN GATHU

In this art it has been common to make use of a closed circuit comprising, generally speaking, a drying chamber, means to heat the air in the circuit to vaporizing temperature, means to cause the air to circulate in the circuit and thereby vaporizing the moisture in the substance or material contained in the drying chamber, and a condenser to condense the vapors as they are evolved from the substance or material to be dried or substantially dried.

This he describes as being common in the art, prior to his invention, exactly the method which the Government has used not only since the option agreement of 1903 but as far back as 1900. Gathmann carries his disclaimer still further to say that (lines 28-42, p. 1 of Pats. 763387 and 763388):

\* \* \* it has been proposed to start the operation by first producing a vapor-laden atmosphere at a temperature below the boiling point of water by causing the air in a closed circuit to absorb more or less steam while in circulation in said circuit and before it enters the drying chamber, the moisture-laden atmosphere being then heated while in circulation to a vaporizing temperature, the circulation being kept up until the material to be dried has been heated through and through and has acquired the same temperature as the moisture-laden atmosphere and until the latter has become saturated by additional vapor evolved from the material being dried.

Thus his own patents admit that there was no novelty in a closed circuit dryer with a heater, condenser, and fan; nor even in the use in a closed

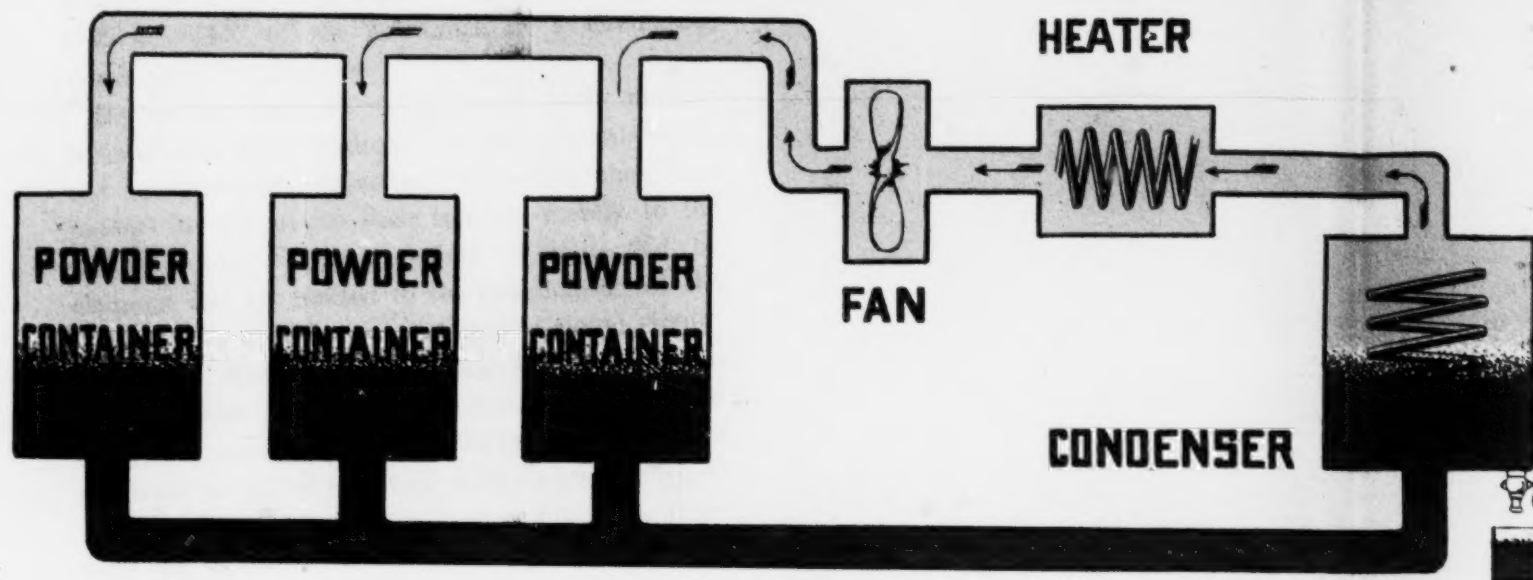
circuit of an atmosphere vapor-laden before it enters the drying chamber and the heating "through and through" of the substance in a circulating vapor-laden atmosphere.

He states, lines 70-72, p. 1, of both method patents that his invention "has for its combination the two methods described." Clearly, then, the patents are limited on their face not merely to the use of a closed circuit system as contended by claimant but are limited to the combination of the two; that is, they require not only a closed circuit, including a heater, fan, and condenser, but the use in such circuit of a vapor-laden atmosphere throughout the system and that the condensation shall be regulated so as to maintain that vapor-laden condition and prevent dry air from coming in contact with the powder. (Lines 93-95, p. 1, and lines 1-3, p. 2, of each of the method patents.)

Such adjustment of the evaporation and condensation was to be maintained by the use of what he called a heater-condenser, a pipe coil inside of the powder chamber, which was to be used as a heater in the first part of the operation and its temperature then gradually lowered. The idea of producing a vapor-laden atmosphere as a drying medium is emphasized by the provision of "a jet-pipe I' in communication with the steam pipe I for injecting steam into the drying chamber." (Pat. 763387, p. 3, lines 9-11; Pat. 763388, p. 2, lines 49-52.)

The heater condenser is mentioned by name five times in the specification of Patent No. 763387. The

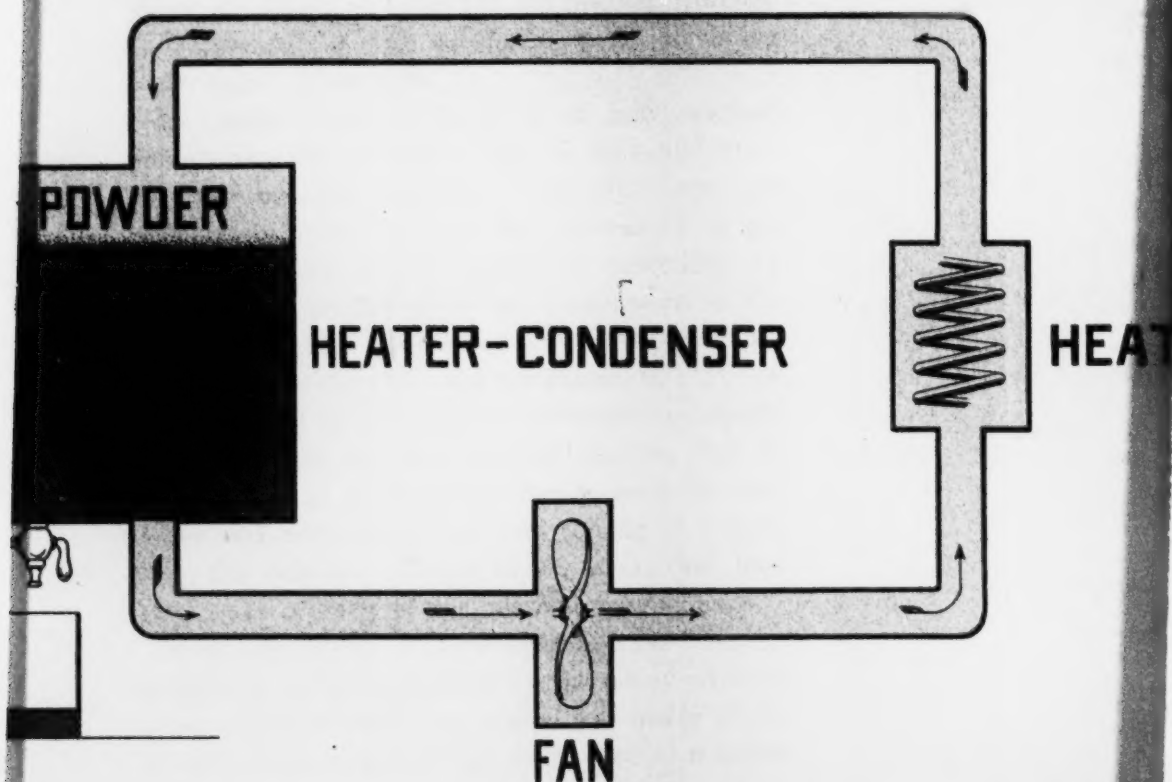




## **DIAGRAM OF DEFENDANT'S PROCESS AS USED 1900**

### **GOVERNMENT PROCESS.**

- (1) Dry air forced through the powder.
- (2) Condensation immediately begun and continued as complete as possible, relieving air of practically all its solvent vapor.
- (3) No means for introducing extra solvent.



## DIAGRAM OF GATHMANN

### GATHMANN'S PROCESS.

- (1) Vapor-laden air forced through the powder.
- (2) Condensation delayed until atmosphere became saturated, and then condensation regulated to relieve air of only a portion of its solvent vapor.
- (3) Supplementary means for introducing extra fluid solvent to keep air saturated in the powder chamber and vapor laden throughout the system.

expression "vapor-laden atmosphere" occurs at least eleven times; the saturation of the atmosphere is specified not less than eight times, and regulation of condensation is referred to five times. The same expressions occur with equal frequency in the other method patent pleaded, No. 763388.

These features are clearly and positively essentials of the method that was tested for Mr. Gathmann. They are the soul and substance of all of his patents, and only because this is so were his patents ever allowed to issue by the Patent Office.

At the risk of wearying the Court with recapitulation of points that may already be clear, we offer the following tabular comparisons between the Government's treating process and that of Gathmann, and for a graphic illustration show side by side the two diagrams already discussed. (See opposite page, the two diagrams pasted together.)

**Gathmann Falls After Extended Test.**

Beginning in October, 1903, and continuing until October, 1904, the Gathmann process was continuously tested at Indian Head, Maryland. Gathmann personally directed all the operations of the drying tests. He had absolutely a free hand to prove the merit of the process, but the time required to dry the powder was not reduced, nor was there any improvement attained over the old 1900 method used by the Government. (Finding VI, Rec. p. 8.)

No change was made in the Government's solvent recovery and drying process as a result

of this test of Gathmann's said method. (Finding VI, Rec. p. 8.)

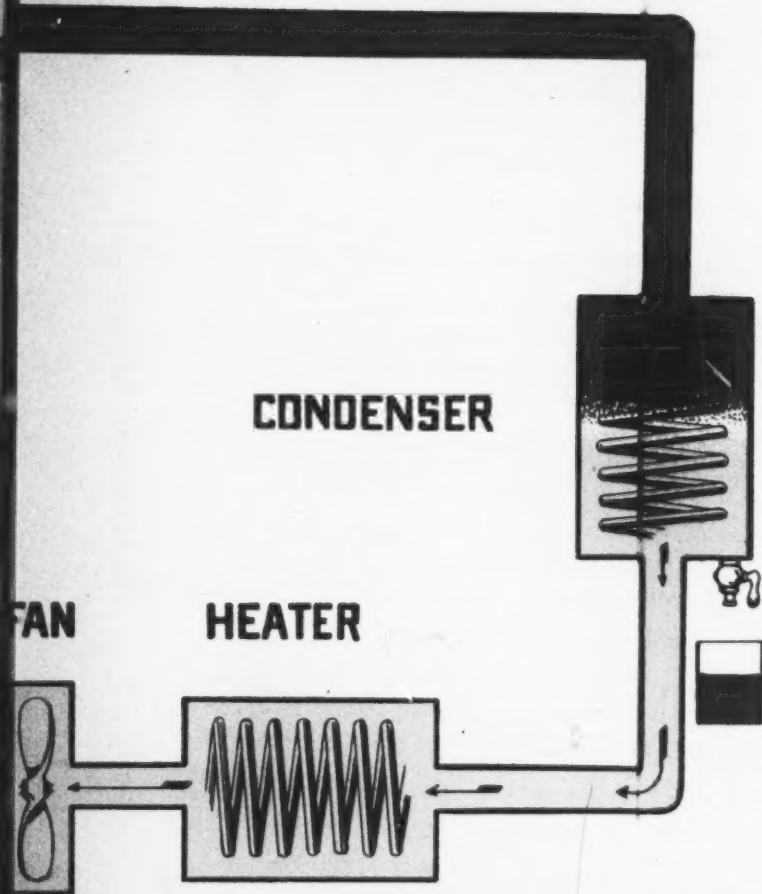
After failure of Gathmann's test the Government used three types of drying and solvent recovery apparatus, viz, the 1907 process, the 1910-1916 process or box type, and the 1914 process. (Exhibits 4, 5, 6, Finding VII, Rec. 9.)

**The Government 1907 Solvent Recovery.**

It is true that the detailed structure of the apparatus used by the Government from 1907 on differed in some mechanical respects from the original apparatus used in 1900. The 1900 apparatus had too many pipe connections, causing undue leakage, and in 1907 this leakage was obviated by providing one large powder chamber instead of several small ones, but the process in theory and practice remained identical with the 1900 method. This 1907 structure is shown in Exhibit 4, made part of Finding of Fact VIII, page 9, Rec., and for clearness and convenience we have shown it in diagrammatic form on the opposite page. The arrows indicate the direction of the air current through the system, and it will be noted that the air passes upward through the powder chamber. In this detail it differs from the Gathmann plan (see sketch Diagram Gathmann Process, opposite page 10) as well as from the 1900 Government apparatus. (Exhibit 1, Rec. p. 5, Finding of Fact III.)

In this 1907 structure, air which has absorbed its load of solvent in the drying chamber passes out of the top of the chamber and continues to the con-

**CONTAINER**

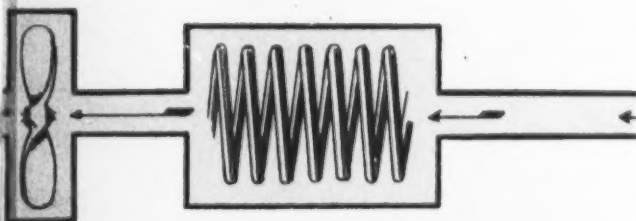


**GRAM OF DEFENDANT'S PROCESS AS  
RE-ESTABLISHED IN 1907**

**CONDENSER**

**FAN**

**HEATER**



**GRAM OF DEFENDANT'S I**  
**RE-ESTABLISHED IN**

densers. This part of its journey, during which it carries ether-alcohol solvent, is indicated by the blue coloring. In the condenser the vapors of ether and alcohol are condensed and drawn off, and the air, now freed of its solvent vapors, passes on through the heater and fan back to the powder chamber, as indicated by the yellow coloring in the sketch opposite page 14, "Diagram of defendant's process as reestablished in 1907."

By reference to Exhibit 1 it will be seen that while the structures used by the Government in 1907 differ slightly in mechanical detail from the old 1900 Government structure, the process itself is identical in both cases. Air-containing solvent vapors, indicated by the color blue, appear in both from the powder chamber to the condenser, and air free solvent vapors, indicated by yellow, appear in both from the condenser, around through the heater and pass to the powder chamber.

It will be remembered that the distinguishing feature of the Gathmann plan was the presence of a considerable amount of solvent vapors in the air even after passing the condenser and on its way back to the powder chamber, as indicated by the light blue coloring in sketch (Gathmann's device), opposite page 10 this brief.

#### **The Government 1914 Solvent Recovery.**

The only modification subsequently made in this solvent recovery of 1907 (see opposite page 14) was the use of a single condenser for a number of powder cans instead of having, as in 1907, a unit

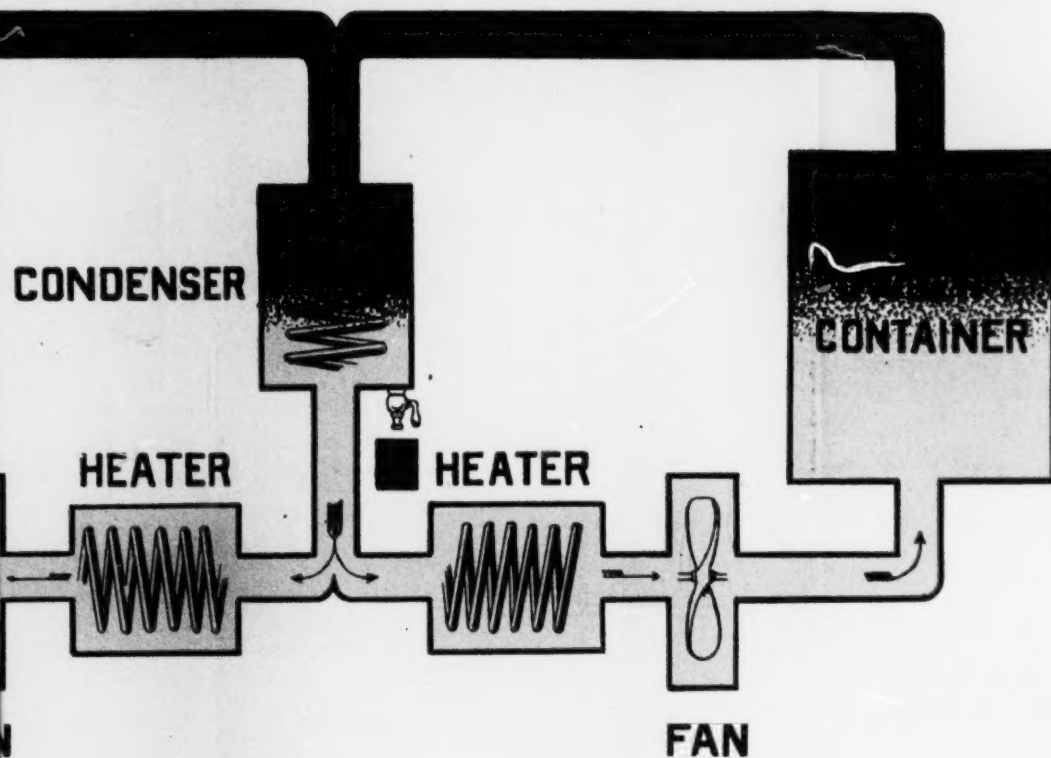


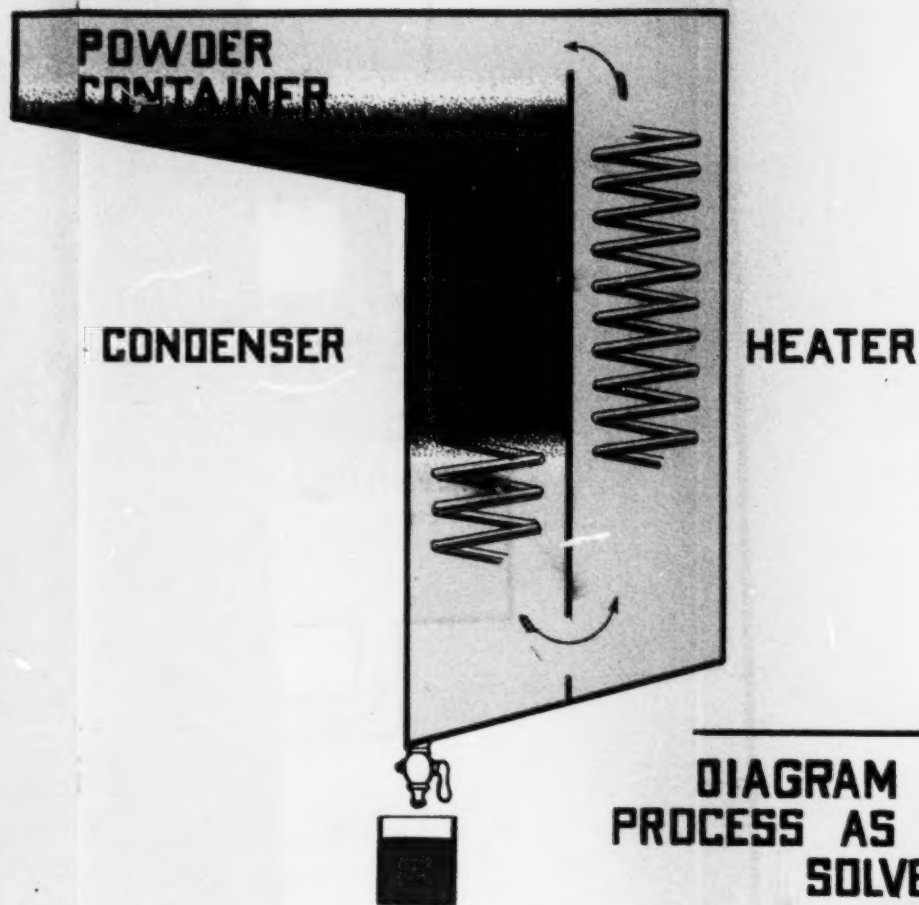
condenser for each powder can. This change was made in 1914. The Government solvent recovery as then modified and as used from that time on is shown in Exhibit 6, made part of Finding VIII, Rec. 9, and diagrammatically shown in sketch on the page opposite. It will be seen that the air pipes from the powder cans carrying solvent vapors, indicated by the blue coloring, unite in a single pipe before proceeding to a single condenser, which thus receives the air and simultaneously condenses the solvent from a number of powder cans. Only two powder cans are shown in the sketch, for simplicity, although a larger number of powder cans may be served by the single condenser. As the air, relieved of its solvent vapor by the condenser proceeds therefrom, it is carried off through branch pipes to the several powder cans, as indicated by the yellow coloring. Except the feature of using a single condenser for a number of powder cans, the solvent recovery of 1914, in structure and use, is identical with the solvent recovery of 1907 (see sketch, opposite page 14) and is distinguished in precisely the same way from the Gathmann structure and method (sketch, opposite page 10).

**The Government 1910-1916 Solvent Recovery.**

Since the Gathmann test in 1903 the Government has used from 1910 to 1916 one other solvent recovery known as the box-type solvent recovery. This is Exhibit 5, made a part of Finding of Fact VIII (Rec. p. 9). It is illustrated diagrammatically opposite page 17. It consisted merely of an odd-

**DEFENDANT'S PROCESS AS USED FROM  
1914**





**DIAGRAM OF DEFENDANT'S  
PROCESS AS USED IN BOX-TYPE  
SOLVENT RECOVERY  
1910 TO 1916**

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shaped box having in one side a chamber for the powder, as indicated, and on the other side a heating coil and a refrigerating coil separated by a partition having apertures to permit a circulation of air, as indicated by the arrows, from the condenser to the bottom of the heater, and from the top of the heater into the powder chamber. The blue coloring indicates air carrying solvent vapors from the powder down to the condenser and the yellow coloring, as in all of the sketches, indicates dry air—that is, air from which the solvent vapors have been condensed, from the condenser through the heater, back into the top of the powder chamber. The absence of a fan will be noted. The circulation was caused simply by gravity, the condenser cooling the air and thus making it heavy on one side of the partition while the heater caused an updraft on the other side of the partition, precisely like a draft up a chimney. As in the other solvent recoveries, there was no use in this of any of Gathmann's ideas.

In all of these solvent recoveries there is manifestly no means for producing or maintaining a vapor-laden atmosphere in treating the powder, nor has the Government followed the teaching of the Gathmann patents directed to the regulated and gradual recovery of the solvent.

**The Patent Claims Relied Upon.**

The patent claims asserted to cover the Government's powder-making at Indian Head are claims 1, 2, and 4 of Patent No. 763387 and claims 1 and

2 of Patent No. 763388. Claim 1 of No. 763387 is as follows:

1. Producing a *vapor-laden atmosphere in a space containing* the substance to be dried, causing the vapor-laden atmosphere to flow *downwardly* through said space and through a space on a *lower level* and *back* again to the first-named space, heating the atmosphere to a vaporizing temperature during circulation, *maintaining the circulation until* the atmosphere is *saturated* with vapor, *then* lowering the temperature of said atmosphere during its passage through the space on a *lower level* to a condensing temperature, restoring the lost heat to the atmosphere after it has left said lower space, and continuing these operations under exclusion of ambient air, until the substance is substantially free from vaporizable matter, for the purpose set forth. (Italics ours.)

By its own terms it calls for a vapor-laden atmosphere throughout the system, and a preliminary circulation of heated atmosphere until saturation is obtained before the condensation is begun; requires that the atmosphere shall flow downwardly through the powder, and that the condensation shall take place in a space on a lower level than the drying chamber.

Claim 2 is as follows (italics ours):

2. The method of drying, which consists in causing a drying medium to flow *downwardly* through a space containing the substance to be dried and through a second space on a *lower level* and back to the upper part of the

first-named space, heating the said medium to a vaporizing temperature while in *circulation, maintaining the latter* until the medium is saturated with vapor, *then* reducing the temperature of the saturated medium to a condensing temperature during its passage through the space on a *lower level*, restoring the lost heat to the medium after it has left the last-named space, and continuing these operations under exclusion of ambient air until the substance to be dried is substantially free from vaporizable matter, for the purposes set forth.

The same requirements are in this claim as in claim 1, except that it apparently does not require that the vapor-laden atmosphere be produced in the drying chamber before circulation is started, but it is apparent that the circulation of heated air preliminary to the beginning of condensation means that the atmosphere will be vapor laden in all parts of the system.

Claim 4 is as follows (*italics ours*):

4. The method of drying, which consists in heating a drying medium to a vaporizing temperature *while confined in a space containing* the substance to be dried, then causing the so-heated medium to flow *downwardly* through said space and thence through a space on a *lower level* and *back* to the upper part of the first-named space, reducing the temperature of the medium to a condensing temperature during its passage through said space on a *lower level, restoring* the lost heat to the medium during its passage through the

space containing the substance to be dried, and maintaining these operations until said substance is substantially free from vaporizable matter, for the purposes set forth.

This claim has all the limitations of claims 1 and 2, except that saturation is not mentioned, but the preliminary heating of the drying medium "while confined in the space containing the substance to be dried," that is, while the chamber is "cut out of the circuit" (lines 43, p. 3, Pat. 763387), is evidently for the purpose of producing saturation, as described on page 3 of the specification (same patent) under "First," lines 56-90.

The requirement of a preliminary circulation of heated medium, in all of these claims, is not fulfilled by any of the solvent recovery processes the Government has used. In no Government apparatus has the temperature of the condenser been purposely varied during the process.

The employment of a vapor-laden atmosphere as a drying medium, clearly present in all of these claims, is not present in the Government's solvent recovery. On the contrary, as much of the solvent as possible is extracted in the condenser.

All of these claims specify that the drying medium shall flow "downwardly" through the drying chamber, whereas in the solvent recovery which was re-established in 1907 and now used, the air passes upward through the powder.

These claims all require that the condensation shall take place at a lower level than the drying chamber,



whereas in the solvent recovery reestablished in 1907 and now in operation, the condenser is on the same level.

These two features last mentioned are present in the box type of solvent recovery, which was used from 1910 to 1916, but the box type does not meet the claims and various other requirements set forth above. The box type solvent recovery has no fan. The circulation is merely induced by gravity.

In obtaining his Patent No. 763387, Gathmann himself distinguishes his device from evaporators having only gravity circulation.

As to United States method Patent No. 763388, claims 1 and 2, relied on by claimant, are as follows (*italics ours*):

1. The method of drying, which consists in *first* forming a vaporous atmosphere *in a space containing* the substance or material to be dried, *then* causing said atmosphere to continuously flow from said space through a second space and *back* to the first-named space, heating the atmosphere while in circulation, to a vaporizing temperature, *then* reducing the temperature of the atmosphere during its passage through said second space, restoring the lost heat and *regulating* the *condensation to maintain the atmosphere in a vaporous condition until* the substance or material to be dried has been freed from a *portion* of its vaporizable matter, then condensing the vapors, and effecting these operations under the exclusion of ambient air, for the purposes set forth.

2. The method of drying, which consists in first forming a *vapor-saturated atmosphere in a space containing* the substance or material to be dried, *then* causing said atmosphere to continuously flow from said space through a second space and back to the first-named space, reducing the temperature of the atmosphere during its passage through said second space to a condensing temperature, restoring the lost heat to the atmosphere after it has left said second space, *regulating the condensation to maintain the atmosphere in a vaporous condition* until the substance to be dried has been freed from a portion of its vaporizable matter, then condensing the vapors and effecting these operations under exclusion of ambient air, for the purposes set forth.

They both employ a vapor-laden atmosphere as a drying medium; require a preliminary forming of a vaporous atmosphere in the drying chamber before the circulation is started; then a circulation of the air before condensation is begun, and a regulation of the condensation so as to maintain the vaporous condition of the drying medium.

Claim 1 evidently contemplates the production of a saturated atmosphere by circulation of the heated medium before condensation is begun, as described at lines 81 to 90 on page 1 of the specification, while in claim 2 the saturated condition is to be produced by heating the material or injecting vapor before circulation is started, as described in lines 5 to 16 on page 2 of the specification.

It should be noted that the specification of both method Patents Nos. 763387 and 763388 contain the same disclaimer, in fact the two patents are identical as far as line 30, page 2 of each. The specification also describes the supplying of steam to the drying chamber (p. 2, lines 49-53; p. 3, lines 36-40), the use of a "heater-condenser" in the lower part of the powder chamber (p. 2, lines 56-57, 83-101, 116-130; p. 3, lines 1-50), and the preliminary use of the drying chamber as a "heating chamber" while it is cut out of the circuit (p. 2, lines 68-83; p. 3, lines 36-50).

In the Government process there is no such regulation of the condensation, no use of a vapor-laden atmosphere as a drying medium, no preliminary forming of a vaporous or vapor-saturated atmosphere in the drying chamber before circulation is started, and no preliminary circulation of the heated medium before condensation is begun.

Although it has already been shown herein that the Government did not use the process that was tested at Indian Head for Mr. Gathmann, and his own disclaimer in his patents eliminates from their scope the apparatus the Government has used, defendant feels that it should stand upon its right to have the prior art considered by the Court.

That the prior art exhibits disclose the so-called Gathmann process does not seem to be challenged by appellant, who is driven instead to stand upon his unsound objection to their introduction. In view of the terms of the claims themselves and the patentee's disclaimer heretofore discussed, it seems

hardly warranted to enter into a long detailed discussion to review individually all of the prior patents, in which the "Gathmann Method" and also the Government methods are disclosed over and over, as one inventor after another during the last half century has conceived minor modifications of the closed-circuit evaporator.

**The Prior Art.**

Exhibit A-12, British Patent No. 19281 of 1897, to Bergstrom, shows not only a closed circuit, with heater C, condenser A, and fan C, but also the down draft through the substance to be dried which features several of the claims in suit, and the importance of which was argued by Gathmann in procuring his Patent No. 763387. (File wrapper and contents, defendant's Ex. 7, pp. 29, 40.)

Exhibit A-13, British Patent No. 30333 of 1897, to Raffold, shows not only a closed circuit with a heater E, a condenser H, and a fan F, but a "regulation of the air movement \* \* \* effected by means of flaps or valves \* \* \* so arranged that the air only enters into the condensing pipe when fully saturated with vapor" (lines 34-40, p. 3), similar in their operation to the valves and gates f', f'', F' and F'' and dampers W and W' in Gathmann's Patent No. 763387, which however are not present in the Government devices.

Exhibit A-1, British Patent No. 1112 of 1878, to Smith, shows not only a closed circuit with a heater C, a condenser H, and a fan E, but the up

current through the material, which the Government uses, and partial condensation (lines 17-18, p. 3; lines 20-21, 25-26, p. 4), which Gathmann emphasizes. Excepting that a second heater is shown within the drying chamber and partial condensation is contemplated, both of which extra features are anticipations of Gathmann, the Smith device is substantially identical with the principal solvent recovery used at Indian Head and is a complete anticipation of the claims in suit.

Exhibit A-4, British Patent No. 6208 of 1887, to Sutcliffe, shows not only a closed circuit system with heating pipes B, a fan C, and describes the use of a condenser to extract the moisture from the drying medium, but also prescribes "circulating the heated air through and through the material" (lines 36-38, p. 3), and "circulating the air again through the material until it becomes saturated or nearly so" (lines 1-5, p. 4), which are almost Gathmann's own words, although antedating his patents by nearly a quarter of a century.

Exhibit A-16, British Patent No. 6067 of 1899, to Vignon-Dante, shows a closed circuit in which it is "always the same volume of air which is used during the process" (lines 10-11, p. 2), with a fan 6 and a heater 3, and while the text is somewhat vague as to the disposition of the moisture, probably because of erroneous translation from the French inventor's native language, the description says that "the vapor of water which

it may contain is then reduced in tension and escapes through the cover" (lines 8-9, p. 2); the drawing shows clearly the course of the air without any escape thereof, and the condensation evidently took place in the chamber 8, the liquid being drawn off through the "cover" or outer wall of the apparatus, as Gathmann proposed. It shows the down draft through the material which is an element of several of the claims in suit.

Exhibit A, British Patent No. 17980, of 1898, shows not only a closed circuit with a heater G, a condenser F, and a fan H, but also steam coils BB within the drying chamber, like Gathmann's pipes C and Dx in Patent No. 763387, D in Patent 763388, their purpose being, as in the Gathmann patents, to give the material a preliminary heating before the circulation is started (lines 17-27, p. 3, of British patent), as emphasized by Gathmann in urging the issuance of his Patent No. 763388.

Exhibit A-15, U. S. Patent No. 632508 of 1899, to Allington, discloses not only a closed circuit system in which "the same body of air is constantly drawn from the drying chamber through the condenser and thence through the heater, being returned from this latter to the drying chamber" (lines 94-104, p. 1), but also regulated or partial condensation (lines 34-38, p. 2).

Having the heater, condenser, and fan in a closed circuit, it is a complete anticipation of the principal Government solvent recovery and of the claims in suit as construed by plaintiff.

Exhibit A-3, U. S. Patent 276405 of 1883, to Hoeveler, discloses not only a closed circuit (lines 33-40, p. 1), with a blower D, a heater G, and a condenser H, but also graduation of temperature and moisture of the drying medium (lines 70-76, p. 1).

Aside from the latter feature, it is a complete anticipation of the principal Indian Head solvent recovery and of the claims in suit as construed by appellant.

Exhibit A-17, U. S. Patent No. 653555 of 1900 to Hart and Ashworth, relates specifically to solvent recovery and discloses a closed circuit (lines 73-83, p. 1; lines 63-72, p. 2), with a condenser 9, a blower 16, and a heater 19. It is a strikingly exact anticipation of the present solvent recovery at Indian Head.

Exhibit A-11, U. S. Patent No. 515913 of 1894, to Larsson and Bergstrom, shows not only a closed circuit (lines 42-45, p. 2) "with a condensing compartment No. 8," a "blower F" and heating compartment A, but also partial condensation (lines 26, 27, p. 2) and down draft (line 14, p. 2).

Exhibit A-8, U. S. Patent to Maxim of 1890, relates specifically to "Recovering solvents from explosives" and is substantially identical with the Indian Head solvent recovery, having a heater, fan, and condenser in a closed circuit. It answers plaintiff's construction of the claims in suit.

Exhibit A-19, U. S. Patent No. 696989 of 1902, to Marshall, relates specifically to solvent recovery, and shows not only a closed circuit with a

condenser *e* (lines 79-80, p. 1) and a fan *g* (lines 89-90, p. 1), but heating coils *within* the drying chamber (lines 71-75, p. 1), as shown in all Gathmann's patents and a graduation of temperatures (lines 49-50, p. 1).

Exhibit A-7, U. S. Patent No. 426453 of 1890, to Morton and Andrews, shows not only a closed circuit (lines 31-32, p. 1) with a heater *F*, inside the drying chamber, a condenser *B*, and a circulation caused by gravity as in the 1910-1916 solvent recovery of Indian Head, but a regulation or retardation of the circulation by means of dampers, as proposed by Gathmann to "retain the hot air in the drying chamber a short time for the double purpose of increasing the temperature and retaining moist air in contact with the lumber" (lines 46-53, p. 2).

Exhibit A-5, U. S. Patent No. 355559 of 1887, to Sargent, shows fans *C* and *C*, heaters *D* and *P'*, and condensers *P* and *P* in a closed circuit (line 95, p. 1), and regulation of the current and moisture of the air by means of dampers *d'* and *d*<sup>2</sup> (lines 90-102, p. 1).

Exhibit A-18, U. S. Patent No. 675070 of 1901, to Sargent shows a device similar to that last mentioned, with a closed circuit (lines 83-84, p. 1) including a heater (lines 22-25, p. 2), a condenser (lines 113, 116, p. 2) and a fan (lines 1-5, p. 2) and also Gathmann's down draft through the material (lines 11-12, p. 2) and partial condensation (lines 113-125, p. 2).



Exhibit A-6, U. S. Patent No. 363704 of 1887, to Van Osdel, shows a closed circuit drier (lines 1-14, p. 2) in which there is a heater N, a condenser E, and circulation reduced by gravity (lines 61-64, p. 2) as in the 1910-1916 solvent recovery at Indian Head, and diminishing moisture of the drying medium (lines 67-71, p. 2).

Exhibit A, U. S. Patent No. 245911 of 1881, to Wood, shows a closed circuit with heaters D, D' and B (lines 50-55, p. 1), the latter being within the drying chamber, a condenser J (lines 13-20, p. 2), a regulation of the air current by means of dampers e, e, e, e, and f' f<sup>2</sup> and f<sup>3</sup> (lines 90-96, p. 1; lines 5-13, p. 2), a regulation of the rate of condensation by gates or valves (lines 34-44, p. 2), and the artificial production of a vapor-laden atmosphere (lines 55-63, p. 2). It shows all the elements of the alleged Gathmann invention which was tested by the Government.

Thus there was already in the art, at the time of Gathmann's entry, a great variety of closed-circuit evaporators, several of them substantially identical with both types of the Government solvent recoveries.

The prior art also discloses everything substantial proposed by Gathmann or covered by the claims in suit, wherefore the claims should be held invalid.

#### CONCLUSION.

It is submitted that the Gathmann method after a fair test proved a failure, and the Government profited nothing because of such experiment;

~~opposite page 17. It consisted merely of an~~ that regardless of patents no use has been made of any idea proposed by Gathmann, and, lastly, that the Gathmann patents in suit Nos. 763387 and 763388 are invalid.

An affirmance of the Court of Claims is respectfully urged.

Respectfully submitted.

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